10/661,689
January 21st, 2005
Declaration Under 37 CFR 1.132

Via Facsimile

Appl. No.	:	10/661,689
Inventor	:	Smith, James D, et al.
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Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Declaration of James D. Smith
Under 37 CFR 1.132

Sir:

I, James D. Smith, hereby declare as follows:

1. This is the second affidavit I have submitted for this case and this affidavit reads on my previous submission.

2. I have studied 8 years at Aberdeen University, Scotland and Syracuse University, NY. I have worked for Siemens Westinghouse Power Corp. for 35 years in the areas of High Voltage Electrical Insulation Polymers for motors and generators.

3. I am the first named inventor on the pending patent application as well as on the two pieces of prior art cited in the June 22nd, 2004 office action, namely 6,238,790 ('790) and 4,224,542 ('541). I have thoroughly read and am intimately familiar with all information disclosed in all of these sources.

Via Facsimile

3. One of ordinary skill in the art would not combine fillers and reactive diluents with the '541 invention and expect to maintain dielectric strength.

4. In my previous affidavit I stated that the resin of the '541 affidavit is unfilled. This is true and is the primary purpose of that invention. It is possible to add fillers or diluents to any resin, including the '541 resin, however you naturally alter the physical properties of the resin when do so.

5. Fillers of the prior art form micro-voids in the resin, and although you might be enhancing some properties of the resin, one physical property that you are sacrificing is dielectric strength. It is known that to add filler of the prior art to a resin, you are sacrificing dielectric strength.

6. In addition to this, to add reactive diluents to a filled resin further decreases the dielectric strength. A resin that was 3-35% wt filler and had a viscosity of at least 100 cps (due to diluent) of the prior art would be expected to have a voltage endurance of less than 1000 hours at 7.5 kv/mm.

7. While researching patching resins I and my colleague discovered, through much experimentation, that by adding a reactive diluent to a resin containing metal intercalated AlSiO nanostructures (about 3-35% wt) we could get a patching resin with a viscosity of 100-300 cps that still had good physical properties, including dielectric strength, which resulted in a voltage endurance of greater than 1000 hours, and sometimes upto 3000 hours, at 7.5 kv/mm.

8. This was unexpected. It was thought that the addition of the reactive diluent to the filled resin would diminish the dielectric strength below the figures we obtained.

Via Facsimile

9. . If one wanted to use the resin described in the '790 patent as a patching resin and maintain its dielectric strength, they would have heated it to reduce its viscosity and not added a reactive diluent. Or they might have added a solvent to attempt to reduce the viscosity while maintaining dielectric strength.

10. Some of the claims of the pending application are directed towards a method of thickening an insulating tape. The reference in the '790 patent, column 9, lines 55-56 state that the '790 resin can be used as "high dielectric patches for repairing damaged stator coils and solid insulation for phase leads..." This is not the same thing as thickening. An insulating tape does not have to be damaged to be thickened. Although a dent may be thickened, thin spots, due to winding errors or squeezing can also be thickened to improve the insulation around a coil. In the prior art, there is no information presented that would teach someone how to develop a formulation that would possess all of the necessary characteristics required for a coil thickening material (high dielectric strength, high thermal stability, low dissipation factor, low dielectric constant, good adhesion and low temperature cure). To develop such a material required a very significant amount of additional experimentation and testing.

Dated this 21st day of January, 2004

Monroeville, PA

James D. Smith